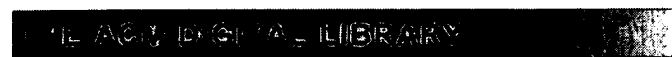



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## The microprogramming of pipelined processors

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### ↑ ABSTRACT

A pipelined processor is one whose computational capabilities are divided into several sequential stages, each of which may be working with an independent set of data at the same instant of time. Such processors are capable of handling large streams of data at very high rates. As with conventional CPUs, the microprogrammed control of such processors offers advantages not possible with hardwired controls. This paper discusses some unique tradeoffs that may be made in the design of microprogrammed pipelines. A sample pipeline demonstrates the characteristics of two extremes of microprogrammed control—one where the microinstruction specifies all activity in the pipeline at one instant of time (time-stationary) and one where the microinstruction “follows” the data through several clock periods (data-stationary). Several typical microprograms show the effects of these two variations on hardware costs, microprogrammability, and pipeline efficiency.

### ↑ REFERENCES